

SUPPORT FOR THE AMENDMENTS

Claim 1 is amended to include the description of Claim 18.

Claim 17 is amended to use description consistent with Claim 1.

Support for the amendment of Claim 18 is found on page 10, lines 17 to 19, in the specification.

Claim 24 is amended to use the same description as Claim 1.

No new matter is believed added to this application by entry of this amendment.

Claims 1, 5, 9, 12-15, 17-18, 22-24 and 27-32 are active. Claim 5 is withdrawn.

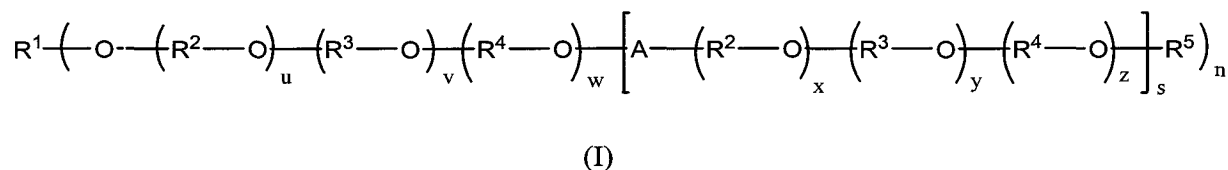
However, Applicants respectfully submit that claim 5 depends directly from Claim 1, and describes subject matter which is examined within the examination of Claim 1 and therefore, should be rejoined.

REMARKS/ARGUMENTS

The claimed invention provides a hair cosmetic formulation as described in Claim 1 and claims dependent thereon, which is clear in appearance, provides a strong hold for elastic hairstyles in humid atmospheric conditions, and provides good feel to the hair, especially in terms of ease of combing and detangling.

Applicants wish to thank Examiner Silverman for the useful and courteous discussion of the above-identified application with Applicants' U.S. representative on October 13, 2009. At that time Applicants' representative reviewed the cited references as well as the present invention and argued that the Hosoda reference does not describe a water content during polymerization of less than 20%. Applicants' U.S. representative further pointed out that the Dieing reference describes vinylimidazoles as secondary optional components and does not disclose or suggest a vinylimidazole as the major component. Further, during the discussion, the Examiner pointed to what he believed was very broad description in Claim 1 and suggested that narrowing the scope of patent protection sought would be useful. The

following reiterates and expands upon that discussion. Applicants respectfully note that Claim 1 is herein amended to delete the description that the polyether-comprising compound (b) is represented by the following formula (I):



and to specify that the polyether-comprising compound (b) is a polymer, copolymer or block copolymer of at least one compound selected from the group consisting of ethylene oxide and propylene oxide. Applicants point out that as a result of previous amendment and the amendment herein, Claim 1 has been amended to more specifically describe the components (a1) and/or a direct preproduct (a2) thereof and component (b).

The rejection of Claims 1, 9, 11-15, 17, 18, 22-24, 27-29, 31 and 32 under 35 U.S.C. 103(a) over Hosoda et al. (U.S. 4,380,600) in view of Dieing et al. (U.S. 6,964,774) is respectfully traversed.

Hosoda describes an aqueous dispersion of a polymer obtained by polymerizing a water soluble ethylenically unsaturated monomer (a) in an aqueous solution of a water soluble polymer (b).

Hosoda describes three types of monomers as capable of forming the water soluble polymer (a) (Col. 4, line 1 to Col. 5, line 25) as represented by formulae (I), (II) and (III). Of these, formula (II) represents cationic monomers derived from alkylene amine esters of acrylic or methacrylic acid. Further monomers capable of forming water soluble polymers are vinylpyridine and vinylpyrrolidone (Col. 5, lines 20-25). Nowhere does Hosoda disclose or suggest 3-methyl-1-vinylimidazolium chloride, 3-methyl-1-vinylimidazolium

methylsulfate and N,N-dimethyl-N,N-diallylammonium chloride as presently described in the claimed invention.

The Office acknowledges that the primary reference does not describe the specific monomers listed in Claim 1 and cites Dieing to show the monomer structures deficient in Hosoda.

Dieing describes a polymer obtained by free radical polymerization of vinyl ester(s) of carboxylic acids in the presence of a polyether. Optional other copolymerizable monomers can be included. After polymerization, the ester functions are partially hydrolyzed to yield a vinyl alcohol type polymer (Abstract). The hydrolyzed polymer can then be cationized by reacting the free hydroxyl groups with cationic epoxides (Col. 13, lines 56-65) and further, the polymer can be crosslinked (Col. 14, lines 25-27).

Dieing describes a large range of compounds optionally useful as comonomers in the free radical polymerization of the vinyl esters. Six generic structural types of possible comonomers are described and a large range of exemplary structures is listed (Col. 8, line 5 to Col. 9, line 4).

The Office has pointed to Dieing's listing of vinyl imidazoles as possible comonomers to be present in the vinyl alcohol polymer to a degree of 0-50% (Col. 13, lines 18-19) and alleges that (Official Action dated July 15, 2009, page 3, lines 3-8):

It would have been prima facie obvious to a person of ordinary skill in the art at the time of the invention to include methyl vinylimidazolium chloride in place of the alkylene amine esters of (meth)acrylate of Hosoda. When two materials are taught to be equivalents, or useful in the art for the same purpose, then substituting one for the other is obvious. Here, the two monomers are both taught to be useful in the same types of cosmetic polymers.

Applicants submit that the Office's opinion of prima facie obviousness is in error, because Dieing describes the two materials useful as optional comonomers. Nowhere does Dieing disclose or suggest polymers based solely on 3-methyl-1-vinylimidazolium chloride,

3-methyl-1-vinylimidazolium methylsulfate and N,N-dimethyl-N,N-diallylammonium chloride. Therefore, the purpose described by Dieing is not the same as that of Hosoda. Moreover, Dieing is directed to hair formulations (Col. 1, lines 6-7) while Hosoda is directed to a variety of industrial applications, including cosmetics (Col. 1, lines 30-36). Nowhere does Hosoda describe a formulation for application to hair.

In view of the above, Applicants submit that the two references do not describe the same utility or the same purpose and therefore a prima facie obviousness is not supported.

Moreover, neither reference discloses or suggests that a significant improvement in terms of reduction in combing force could be obtained according to the composition of the present invention as again reproduced from the specification for the Examiner's convenience.

	Example 1	Comparison 1	Comparison 2a	Comparison 2b	Comparison 3
Solids content (% by wt.)	60.2	49.8	10.8	60.8	37.2
Combing force decrease wet (%) (Europ. hair)	44	23	15	18	28
Combing force decrease dry (%) (Asiat. hair)	86	77	ND	ND	79
Surfactant solution 0.5% active ingredient	clear	clear	slightly cloudy	clear	clear
K value 1% in ethanol	15.1				

ND: Not determined since combing force decrease wet insufficient (<20%)

Applicants respectfully remind the Office that the solids content displayed in the Table refers only to the solids content of the polymerization mixture and should not be confused with the solids content of the respective shampoo compositions. The shampoo

compositions were all prepared to be of solids content 0.5% by weight (page 43, lines 14-22) and are directly comparable.

The actual water content of Example 1 during polymerization was 7% by weight, which is consistent with the description of Claim 1, wherein the water content in the reaction mixture during the polymerization is less than 20 % by weight.

In Comparative Example 1, the cationic polymer of the inventive example 1 was prepared in a polymerization mixture having a water content of 50 % by weight. Comparative Example 2b is simply a physical mixture of a cationic polymer of the same monomer composition which is physically mixed with the polyether compound after polymerization is complete.

The composition according to the claimed invention shows a significant reduction in combing force for both wet and dry hair in comparison to the comparative examples. Such improvement is neither disclosed nor suggested by the cited combination of references.

Applicants again respectfully submit that as described by Hosoda, the water content of the polymerization is greater than 20%. The water soluble polymer (b) is present in a range of 3 to 150 parts per 100 parts water by weight and the monomer (a) is present in a range of from 10 to 150 parts per 100 parts of water by weight (Claim 1). Therefore the minimum per cent water in the composition during polymerization of (a) is 25 % by weight.

Moreover, Applicants continue to believe that the cited reference actually teaches away from a concentration of water of less than 20 % by weight. Regarding the concentration of polymer (b), Hosoda states:

“... , if the amount exceeds 150 parts by weight, it is difficult to dissolve the polymer (b) in water. Furthermore, since the polymer (b) itself has a high viscosity in water, the viscosity of the final aqueous dispersion of the polymer is excessively high, and the desired flowability and stability will not be obtained.” (Col. 6, lines 12-19)

Regarding the water concentration of the monomer (a), Hosoda describes:

In the process of this invention, the content of the polymer (b) in the aqueous solution of the water soluble polymer (b), the amount of the monomer (a) to be polymerized, and the weight ratio of the monomer (a) to the polymer (b) are important. These factors are correlated to give the desired aqueous dispersion of a water soluble polymer composition.

The concentration of the polymer (b) in the aqueous solution is at least 3 parts, preferably at least 5 parts, most preferably at least 10 parts, by weight per 100 parts by weight water. . . . if it exceeds 150 parts by weight, **the viscosity of the final dispersion becomes too high, and the desired product with superior stability and flowability cannot be obtained.**" (Col. 5, line 66 to Col. 6 line 19)

As described above, Applicants respectfully submit that Hosoda describes an important concentration of materials in order to produce a stable aqueous dispersion and polymerization in a mixture of less than 20 % by weight water would not produce the sought after stability. Additionally, as described above, Applicants respectfully submit that Hosoda actually teaches away from such a concentration of polymer dispersion prepared in less than 20 % water because such a low concentration would degrade the stability of the aqueous polymer complex dispersion..

In view of all the above, Applicants respectfully submit that the cited combination of references reference can not render the claimed invention obvious, and withdrawal of the rejection of Claims 1, 9, 11-15, 17, 18, 22-24, 27-29, 31 and 32 under 35 U.S.C. 103(a) over Hosoda in view of Dieing is respectfully requested.

The rejection of Claim 30 under 35 U.S.C. 103(a) over Hosoda in view of Dieing and further in view of Koplow (U.S. 5,223,247) is respectfully traversed.

Applicants note that Claim 30 depends directly from Claim 1 and includes all the description therein. The deficiencies of the primary combination of references is described above. The Office has cited Kopolow to show a propellant in a hair spray composition

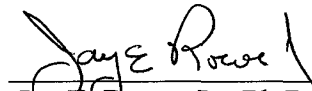
Kopolow describes a composition containing a polyvinyl pyrrolidone having two monomer components in a specific ratio (Abstract). This tertiary reference does not disclose

or suggest the composition according to Claim 1 of the present invention and therefore cannot cure the deficiencies of the Hosoda/Dieing combination. Accordingly, the combination of references cannot render Claim 30 obvious and Applicants respectfully request that the rejection of Claim 30 under 35 U.S.C. 103(a) over Hosoda in view of Dieing and further in view of Koplow be withdrawn.

Applicants respectfully submit that the above identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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